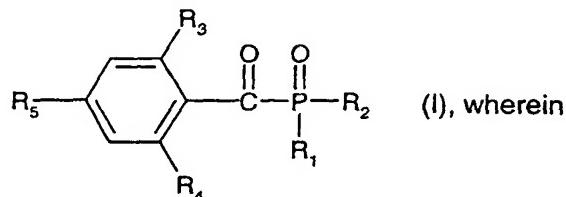


What is claimed is :

1. An aqueous, storage-stable, non-sedimenting suspension comprising
 (a) at least one mono- or bis-acylphosphine oxide of formula I



R_1 is C_1-C_{20} alkyl; C_2-C_{20} alkyl interrupted by one or more O atoms; C_1-C_{12} alkoxy; phenyl- C_1-C_4 alkyl; or phenyl that is unsubstituted or substituted by C_1-C_{20} alkyl, C_1-C_{12} alkoxy, halogen, cyclopentyl, cyclohexyl, C_2-C_{12} alkenyl, C_2-C_{18} alkyl interrupted by one or more O atoms, and/or by phenyl- C_1-C_4 alkyl; or R_1 is biphenylyl;

R_2 is the radical or has one of the meanings given for R_1 ;

R_3 and R_4 are each independently of the other C_1-C_{12} alkyl, C_1-C_{12} alkoxy or halogen; and
 R_5 is hydrogen, C_1-C_{12} alkyl, C_1-C_{12} alkoxy or halogen;

- (b) at least one dispersant;
 (c) water; and, optionally,
 (d) further additives.

2. An aqueous suspension according to claim 1, comprising as component (a) a compound of formula I, wherein

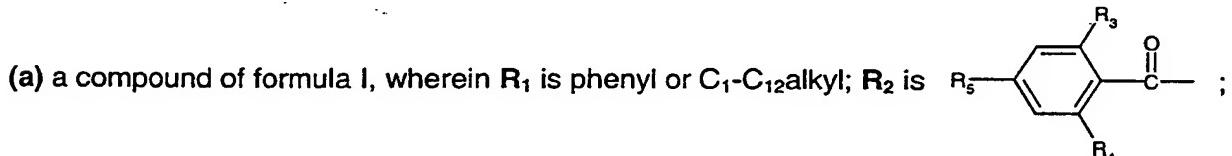
R_1 is C_1-C_{20} alkyl; C_1-C_4 alkoxy; or phenyl that is unsubstituted or substituted by C_1-C_{12} alkyl, C_1-C_{12} alkoxy and/or by halogen;

R_2 is the radical or has one of the meanings given for R_1 ;

- 43 -

R₃ and **R₄** are each independently of the other C₁-C₄alkyl or C₁-C₄alkoxy; and
R₅ is hydrogen, C₁-C₁₂alkyl or C₁-C₁₂alkoxy.

3. An aqueous suspension according to claim 1, comprising as component (a)
 bis(2,6-dimethoxybenzoyl)-2,4,4-trimethylpentylphosphine oxide;
 bis(2,4,6-trimethylbenzoyl)-2,4-dipentyloxyphenylphosphine oxide;
 bis(2,4,6-trimethylbenzoyl)phenylphosphine oxide; or
 2,4,6-trimethylbenzoyldiphenylphosphine oxide.
4. An aqueous suspension according to claim 1, wherein the particle size of the solid or solids in the suspension is from 0.1 µm to 12 µm, especially from 0.1 µm to 4 µm.
5. An aqueous suspension according to claim 1, comprising
 from 10 to 80 parts of component (a);
 from 1 to 40 parts of component (b); and
 a sufficient number of parts of component (c) for the total composition to amount to
 100 parts.
6. An aqueous suspension according to claim 1, comprising as component (b) polymers based on maleic acid anhydride, polyvinyl alcohol or modified polyacrylates, especially the alkali salts of carboxylic acid copolymers or polyvinyl alcohol.
7. An aqueous suspension according to claim 1, comprising



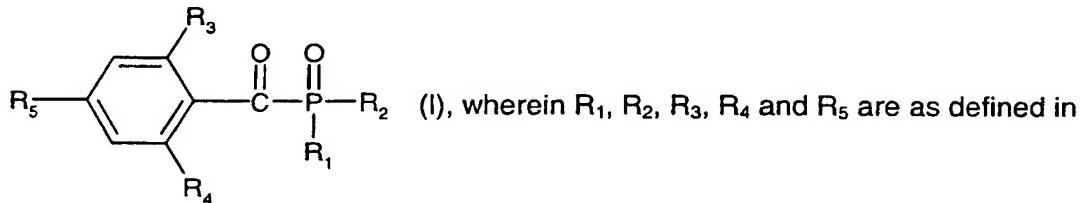
R₃ and R₄ are C₁-C₄alkyl or C₁-C₄alkoxy; and R₅ is hydrogen or C₁-C₄alkyl; and
(b) as dispersant, an alkali salt of a carboxylic acid polymer, polyvinyl alcohol or a modified polyacrylate.

8. An aqueous suspension according to claim 1, comprising as additional component (d) at least one biocide.

9. An aqueous suspension according to claim 1, comprising as additional component (d) at least one UV absorber and/or a sterically hindered amine.

10. A process for the preparation of an aqueous, storage-stable, non-sedimenting photoinitiator suspension comprising

(a) at least one mono- or bis-acylphosphine oxide of formula I



claim 1,

- (b) at least one dispersant,
- (c) water, and, optionally,
- (d) further additives

by

- (1) suspending components (a), (b) and (c) and, optionally, (d), by stirring;
- (2) coarse-grinding the resulting mixture to a particle size of the solid material in the suspension of approximately 60 µm; and
- (3) fine-grinding the mixture by one or more grinding operations to a particle size of the solid material in the suspension of less than 12 µm.

11. A photopolymerisable composition comprising

- (A) at least one ethylenically unsaturated photopolymerisable compound and
- (B) as photoinitiator, a suspension according to claim 1.

12. A photopolymerisable composition according to claim 11, wherein component (A) comprises at least one ethylenically unsaturated photopolymerisable compound dissolved or emulsified in water.

13. A photopolymerisable composition according to claim 11, comprising in addition to components (A) and (B) further additives (C), especially from the group consisting of UV absorbers, sterically hindered amines, biocides and/or pigments.

14. A process for the photopolymerisation of compounds having ethylenically unsaturated double bonds, which comprises irradiating a composition according to claim 11 with light in the range from 200 to 600 nm.
15. A process according to claim 14 for the production of surface coatings, printing inks, screen-printing inks, offset-printing inks, flexographic-printing inks, resist materials or image-recording material, especially for the production of corresponding aqueous systems.
16. The use of an aqueous suspension according to claim 1 as photoinitiator in the photopolymerisation of compounds having ethylenically unsaturated double bonds.
17. The use of a composition according to claim 11 in the production of surface coatings, printing inks, screen-printing inks, offset-printing inks, flexographic-printing inks, resist materials or image-recording material, especially in the production of corresponding aqueous systems.
18. A coated substrate that is coated on at least one surface with a composition according to claim 11.